IEPR Workshop
Transportation Fuel Infrastructure Issues
RFS2 & LCFS Industry Obligations

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RFS2
Issues & Concerns

Q: What happens if the blend wall remains at E10 in California?

A: It makes it harder to meet the RFS2 requirements but the real issue is that the EPA E15 waiver approval only removed one layer of the multi-layered blend wall.

- The E10 blend wall is made up of multiple layers:
  - Sub-Sim Regulation (this is what EPA waived)
  - EPA Labeling & Retail Survey Requirements (Final Rule at OMB for approval)
  - Section 211b Health Effects Testing (EPA reviewing submission, approval decision pending)
  - RFG, CARB and AZ Regulations (EPA Labeling Rule takes care of RFG)
  - State Laws and Regulations
  - ASTM & NIST Standards
  - Warranty Issues (OEM & Extended)
  - Liability Issue

The EPA has only removed one layer of the multi-layer E10 blend wall.

RFS2
Issues & Concerns

Q: What sort of challenges does E85 present for retailers?

A: Installing E85 dispensers are hard to economically justify, unless the cost is highly subsidized. There are many issues:

- It costs about $100,000 to put in a tank, lines and a dispenser at a new site
- Retro-fits are about 20% more expensive
- Most retail outlets are owned by someone that owns only 1 or 2 outlets and the outlets make only about $40,000 per year
- Consumers do not buy E85 unless it is priced below E10
  - If ethanol blending is economic and not being set by E10 blending economics, then discounted ethanol should be available for E85, but this may not always be the case

Installing E85 dispensers are hard to economically justify.

RFS2
Issues & Concerns

Q: Will there be commercial-scale quantities of cellulosic biofuels any time soon?

A: Valero is aware of one, 25 million gallon per year cellulosic ethanol plant that is moving forward, but there are many obstacles:

- To date, no cellulosic ethanol RINs have been generated under the RFS2 regulations
- The capital cost for a 25 million gallon per year cellulosic ethanol plant is about $200 million
- The lack of volume will force EPA to lower the Advanced Biofuel Obligation and the Total Renewable Obligation beginning in 2012 to make the RFS2 regulations feasible

The EPA must lower the Advanced Biofuel Obligation and the Total Renewable Fuel Obligation beginning in 2012 to make the RFS2 feasible.

RFS2
Issues & Concerns

Q: What are RIN prices telling us about the availability of various biofuels? Biodiesel RINs are $1.28, Advanced RINs are $0.66, Cellulosic RINs are $1.15, Corn RINs are $0.02 and Cellulosic Allowances are $1.13

A: The market prices of the various types of RINs are indicating:

- Biodiesel supply is tight, below the 2011 standard
- There is no Cellulosic biofuel, the RINs trading are 2010 RFS RINs and they are above the price of Cellulosic Allowances that can be bought from the EPA
- Advanced RINs are based on Caribbean Ethanol sourced in Brazil
- Corn ethanol supply exceeds the 2011 standard

RIN prices indicate that biodiesel supply is below the 2011 RFS2 standard.

RFS2
Issues & Concerns

Q: Is there a feasible solution to comply with the regulation by 2022?

A: Valero does not know of an economical way to meet the outer year volumes of renewable fuel required by the RFS2 regulations. While we do not believe that the RFS2 program will go away, we believe that Congress will have to lower the required volumes and that the EPA will have to issue waivers potentially as soon as 2011 or 2012 for biodiesel.

The outer year RFS2 standards appear to be uneconomical.

LCFS
Issues & Concerns

Q: Are there concerns with adequate supplies of Brazilian ethanol being available for use in California? If available, what type of costs for CA gasoline might be expected based on current Brazil ethanol prices?

A: There are several concerns with using or needing Brazilian ethanol to meet the LCFS standards:

- Globally we would be shuffling ethanol and increasing CO2 emissions
- The infrastructure is not set up to import all of the ethanol that CA uses
- Currently ethanol from Brazil costs about $1.50 per gallon more than U.S. ethanol, this could increase the cost of CARB gasoline by as much as 15 cents per gallon

The LCFS regulations will promote shuffling of ethanol and increased CO2 emissions.

LCFS
Issues & Concerns

Q: What would be the potential impact on competition for low CI biofuels if the LCFS were to be copied in other regions of the U.S.?

A: There are several concerns with expanding a LCFS beyond California:

- Increased demand for low CI biofuels would raise prices to consumers
- We would be shuffling additional crude and ethanol and increasing CO2 emissions
- Negative consumer impacts with no environmental benefit

Expanding the LCFS beyond California will raise consumer costs with no environmental benefit.

LCFS
Issues & Concerns

Q: Is there a feasible solution to comply with the regulation by 2020?

A: Valero does not know of an economical way to meet the outer year % reduction standards required by the LCFS regulations. While we do not believe that the LCFS program will go away, we believe that CARB will have to lower the required % reductions and that CARB will have to issue waivers potentially as soon as 2015.

The outer year LCFS % reductions appear to be infeasible.

RFS2 and LCFS Summary

- ✓ E10 blend wall remains a problem
- ✓ E85 economics are hard to justify for retailers and consumers
- ✓ RFS2 obligations are infeasible without revising the fuel obligations starting as early as 2012
- ✓ RIN prices reflect limited supply of biodiesel and cellulosic biofuels
- ✓ Outer year RFS2 volumes and LCFS % reductions appear uneconomical and likely infeasible
- ✓ LCFS will promote ethanol and crude shuffling, increasing consumer cost with no resulting environmental benefit

HCICO
Issues & Concerns

Q: How has this provision altered your company's crude purchasing decisions?

A: Valero is minimizing its HCICO purchases and does not plan of buying any for delivery after September 30, 2011.

- HCICO disadvantages California refiners
- Some CA baseline crudes have a higher CI than non-baseline HCICO, this disadvantages these non-baseline crudes from being run at California refineries

The HCICO provisions of the LCFS negatively impact CA refiners.

HCICO
Issues & Concerns

Q: How easy of difficult is it to offset the incremental carbon debit of HCICO during 2011? How easy or difficult would it be to offset by 2015?

A: The HCICO incremental carbon debit amounts to about a 13 CI debit or about a 13% increase in CI of the CARBOB and CARB Diesel produced. This is a significant debit as the LCFS does not call for a 10% decrease until 2020.

- Currently there is only 80 – 90 CI ethanol available to offset the debit
- Given the volumetric and ethanol blending ratios, HCICO are essentially excluded from the CA market
- If a party could get all 80 CI ethanol they would likely only be able to run 15% HCICO in 2011 and likely none by 2015

The world-wide market for crude is large enough that producers are not concerned about the California market.

HCICO Summary

- ✓ HCICO negatively impact California refineries
- ✓ CARB's approach eliminates as much as ~25% of the crude availability for CA refineries, even though many HCICO's have lower CI than some of the California baseline crudes
- ✓ Crude is a "global" commodity
- ✓ The world-wide crude market is not driven by California - - every barrel of crude produced has a buyer and will be used, regardless of the California LCFS